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In this issue: Obesity toolkit for primary care providers	page 4
Cancer in South Dakota 2003	page 5
Comprehensive Cancer Control hospice survey	page 13
Selected morbidity report, January - November 2006	page 15

Cryptosporidiosis Increase in South Dakota

By Nato Tarkhashvili, MD, Career Epidemiology Field Officer

Background

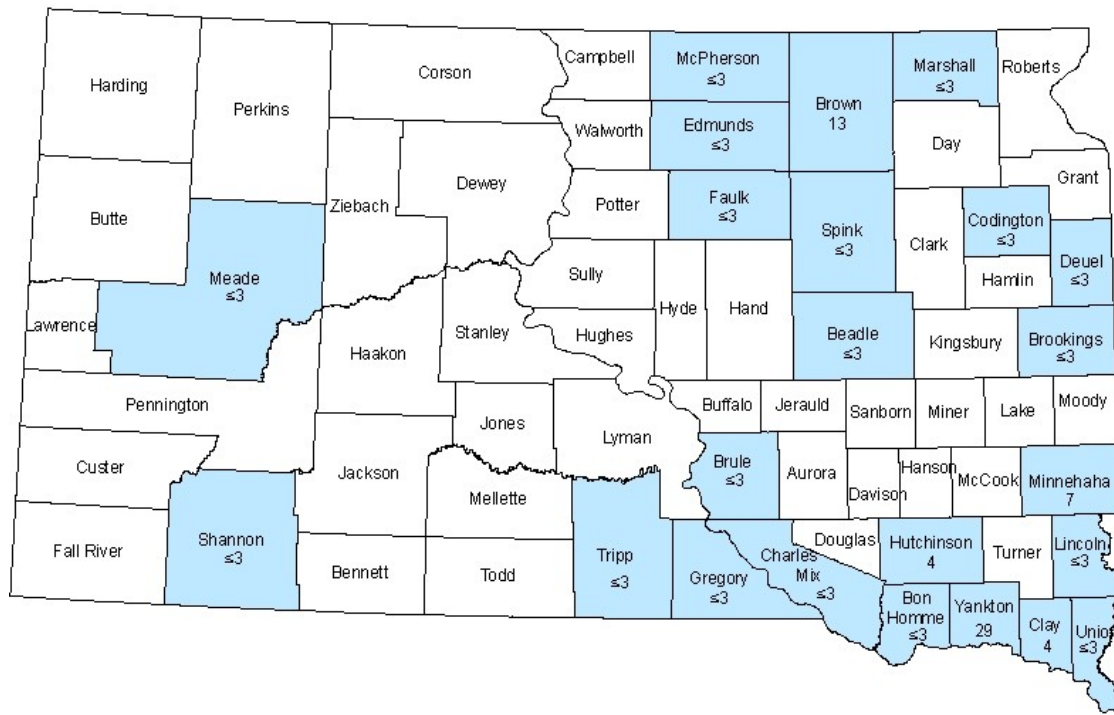
Cryptosporidium spp. is an emerging protozoan pathogen and a cause of severe, life-threatening disease in immunocompromised patients¹. The parasite is transmitted by fecal-oral route by ingestion of oocysts excreted in the feces of infected humans or animals. The infection can be transmitted from person-to-person, through ingestion of contaminated drinking or recreational water, food, from animal to person or by contact with fecally contaminated environmental surfaces^{2,3}.

Infection with *Cryptosporidium spp.* results in a wide range of manifestations, from asymptomatic infections to severe, life-threatening illness¹. The incubation period is an average of 7 days (range 1–12 days). Watery diarrhea is the most frequent symptom, and can be accompanied by dehydration, weight loss, abdominal pain, fever, nausea and vomiting. Cryptosporidiosis incidence usually peaks during summer and no safe and effective form of specific treatment for cryptosporidiosis exists.

Cryptosporidiosis has been a reportable disease in South Dakota since 1996 with the first reported case in 1997. From 1997 to 2005, 244 cases have been reported with an annual median of 27 cases (range 7–49 cases per year).

From January 2006 through October 31, 2006, South Dakota reported 86 cases of cryptosporidiosis, representing a 269% increase over the five year baseline (32). The South Dakota Department of Health investigated the distribution and characteristics of cases to identify possible risk factors of the increase.

Cryptosporidiosis Cases — South Dakota, January–October 2006



Results

The Department of Health has collected risk exposure data on cryptosporidiosis cases since 2002 for surveillance purposes. The case management system is a Microsoft access-based system that allows the South Dakota Department of Health to enter, analyze and disseminate data regarding reportable diseases including cryptosporidiosis.

The department grouped cases with onset in 2006 and those with onset during 2002–2005 separately and calculated X^2 for exposure, risk factors and experiencing symptoms. P value ≤ 0.05 was considered statistically significant.

Surveillance data revealed that cryptosporidiosis incidence in 2006 was 269% above the state's 5 year baseline level, although giardiasis incidence showed an 11% decrease. In 2006 cases differ a little from cases that occurred during 2002–2005 by risk factors and symptoms (Table 1, 2).

Forty (46.5%) cases were female and 78 (95.1%) were white in 2006. Ages ranged from 7 months to 90 years with 31% of cases in young children 1–4 years of age.

Most of the cases were from eastern South Dakota with 34% from Yankton County, 15.5% from Brown County, and 4.8% from Minnehaha County.

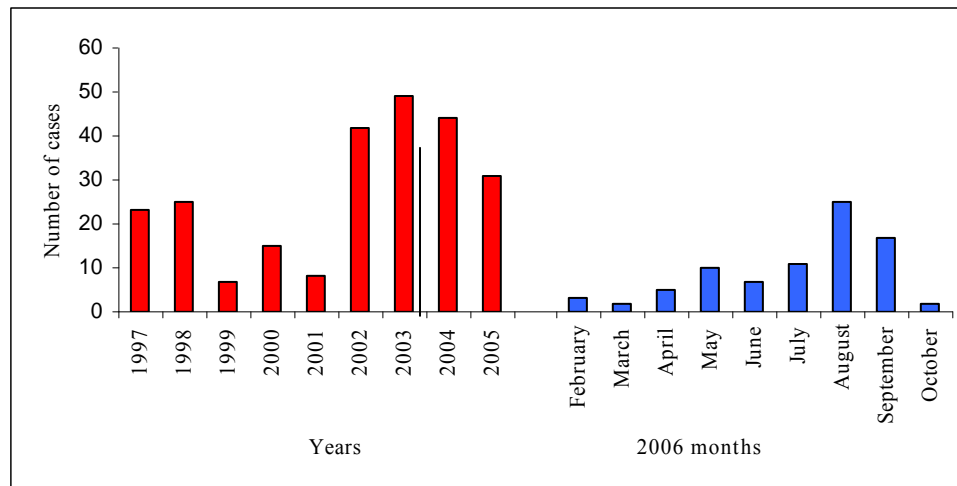
Table 1. Signs and Symptoms of Cryptosporidiosis by Year of Onset — Case Management System, South Dakota, 2002–2006				
Signs and symptoms	Cases reported in 2006 (N=86)	Cases reported 2002–2005 (N=166)	X^2	<i>p</i> value
Abdominal cramps	60 (70.6%)	87 (75%)	0.48	0.49
Acute diarrhea	66 (78.6%)	42 (38.9%)	30	≤0.01
Bloating	17 (20.7%)	39 (33.6%)	3.9	0.05
Bloody stool	8 (9.5%)	13 (11.3%)	0.16	0.69
Chronic diarrhea	22 (26.5%)	64 (56.1%)	17.15	≤0.01
Fatigue	42 (50.6%)	74 (64.3%)	3.8	0.05
Fever	23 (27.7%)	30 (26.1%)	0.06	0.79
Nausea	46 (54.8%)	34 (29.6%)	12.82	≤0.01
Vomiting	47 (55.3%)	38 (33.0%)	6.9	≤0.01
Weight loss	20 (24.1%)	56 (48.3%)	11.9	≤0.01
Pale fatty stool	5 (6.3%)	22 (19.8%)	6.89	≤0.01
Hospitalized	16 (18.6%)	25 (21.4%)	0.23	0.63

Twenty-five (29.1%) cases were exposed to swimming pool/spa, 16 (18.6%) were hospitalized, 26 (30.2%) cases had exposure to farm animals and 41 (47.7%) had pets in their household. The case management system does not contain questions on food exposures (especially produce consumption) and detailed data on drinking water.

Table 2. Risk Factors of Cryptosporidiosis by Year of Onset — Case Management System, South Dakota, 2002–2006				
Risk factors	Cases reported 2006 (N=86)	Cases reported 2002–2005 (N=166)	X^2	<i>p</i> value
Race (white)	78 (95.1%)	107 (93.0%)	0.36	0.55
Sex (female)	40 (46.5%)	63 (54.3%)	1.2	0.27
Age group (0–10 years)	38 (46.9%)	34 (32.1%)	4.27	0.04
Drank surface water	4 (4.7%)	5 (4.3%)	0.02	0.9
Drank unpasteurized milk	2 (2.3%)	3 (2.6%)	0.01	0.91
Farm livestock exposure	26 (30.2%)	29 (24.8%)	0.74	0.39
Illness in community	2 (2.3%)	0	N/A	N/A
Lake/river exposure	9 (10.5%)	19 (16.2%)	1.39	0.24
Pets in home	41 (47.7%)	59 (50.4%)	0.15	0.69
Petting zoo attendance	3 (3.5%)	8 (6.8%)	1.08	0.29
Swimming pool/spa	25 (29.1%)	22 (18.8%)	2.94	0.08
Travel out of state	11 (12.8%)	9 (7.7%)	1.45	0.23
Child care attendee	12 (14%)	12 (10.3%)	0.65	0.42
Child care provider	0	2 (1.7%)	N/A	N/A

A total of 35 communities reported cases in 2006. Although 40% of affected communities had water supplied from the Missouri River, the department has no evidence implicating drinking water as a source of infection. No changes in turbidity or other characteristics of water were reported in 2006 in the affected communities.

Number of Cryptosporidiosis Cases by Year (1997–2005) and Month of Illness Onset (January–October 2006) — South Dakota, 1997–2006



We surveyed several laboratories providing services in South Dakota. These laboratories used the same method for diagnosing cryptosporidiosis: enzyme immunoassay (EIA) ImmunoCard STAT!® *Cryptosporidium/Giardia* Rapid Assay (Meridian Bioscience, Inc., Cincinnati, Ohio). This assay is a solid-phase qualitative immunochromatographic assay designed to detect and distinguish between *Giardia intestinalis* (*lamblia*) and *Cryptosporidium spp.* in aqueous extracts of human fecal specimens. Increased testing for cryptosporidiosis was an unlikely explanation based on aggregate numbers reported by one of the medical clinics demonstrating that no increase has been observed in testing orders since 2005.

In conclusion, cryptosporidiosis is an emerging disease in South Dakota that has been increasing in recent years. Despite rigorous investigations, the cause of an increase remains unclear. People should be aware and take precautions to protect themselves – especially individuals with weakened immune systems. Precautions include proper hand washing, avoiding farm animals (particularly young calves and lambs), avoiding touching pet feces, avoiding swallowing river water, washing and cooking your food, and drinking only safe water.

References:

1. MacKenzie WR, Schell WL. Massive outbreak of waterborne cryptosporidium infection in Milwaukee, Wisconsin: recurrence of illness and risk of secondary transmission. *Clinical Infectious Diseases* 1995; Jul; 21(1):63-4.
 2. CDC. Outbreaks of Escherichia coli O157:H7 Infection and Cryptosporidiosis Associated with Drinking Unpasteurized Apple Cider -- Connecticut and New York, October 1996. *MMWR* 1997 / 46(01); 4-8.
- CDC. Cryptosporidium Infections Associated with Swimming Pools -- Dane County, Wisconsin, 1993. *MMWR* 1994 / 43(31); 561-563.

Obesity toolkit available for primary care providers

Patients who are counseled in a primary care setting about the benefits of healthy eating and physical activity are more likely to lose weight, consume less fat, and exercise more than patients who don't receive counseling. However, according to the 2003 South Dakota BRFSS only 15.4% of overweight or obese SD adults reported being advised to lose weight by a healthcare professional.

The Department of Health and the South Dakota State Medical Association have created a clinical toolkit as a resource to help physicians and other healthcare providers address obesity with their patients. The kit is designed to help practitioners develop their own approach to the management of obesity. Its tools may be used individually or as a collective group, based on the practitioner's preferences.

Obesity is increasing rapidly among South Dakota children, adolescents, and adults.

- 13.9% of 2-5 year olds from limited income families are overweight (BMI-for-age 95th percentile and above) and an additional 18.1% are at risk of being overweight (BMI-for-age 85-94th percentile BMI-for-age) (2004 SD PedNSS data)
- 16.4% of 5-19 year olds are overweight and an additional 16.6% are at risk of being overweight (2004-2005 SD School Height and Weight Report)
- 62.8% of adults are overweight with 25.5% obese (2005 SD BRFSS)

The obesity toolkit is one part of the larger South Dakota State Plan for Nutrition and Physical Activity to Prevent Obesity and Other Chronic Disease (www.healthysd.gov/StatePlan.html, January 2006). One of the goals in this plan is to increase support for physical activity and healthy eating within South Dakota healthcare systems and among health care providers in order to achieve a healthy Body Mass Index (BMI) for all South Dakotans.

Copies of the obesity toolkit are available online at www.healthysd.gov. Or contact the Department of Health, Office of Health Promotion, at (605)773-3737.

Cancer in South Dakota 2003

By Mynna Boodhoo Kightlinger, MSPH, South Dakota Cancer Registry Coordinator

The South Cancer Registry 2003 annual report, a summary of key facts on incidence, mortality and behavioral data is online at www.state.sd.us/doh/Pubs2/cancer2003.pdf. Major findings were:

Incidence 2003

- Each day approximately 11 South Dakotans were diagnosed with cancer.
- A total of 3,814 South Dakotans were diagnosed with all invasive cancers and in situ bladder cancers.¹ (This number excludes the less life-threatening *in situ* cancers and the common skin cancers).
- More than half, 54%, of all new cancers were diagnosed in males and 46% were in females.
- South Dakota's age-adjusted incidence rate for 2003 was 458.2 compared to the U.S. age-adjusted rate of 452.8.²
- Males had an age-adjusted incidence rate 39.7% higher than females.

- Whites accounted for 95% of cases with 3,640, American Indians 4% with 148 cases, and other or unknown races 1%³.
- The American Indian age-adjusted incidence rate was slightly higher (approximately 6%) than the rates among whites and all South Dakotans. However, it was not statistically significant.
- The top five cancer sites accounted for 65% of cancers diagnosed in 2003.

¹ <http://www.state.sd.us/doh/sdcr/reportablelist.htm>

² SEER Surveillance Epidemiology and End Results <http://seer.cancer.gov/>

³ SD 2003 population was 86.7% white and 8.3 % American Indian.

Table 1: Top Five Cancers Diagnosed, South Dakota 2003

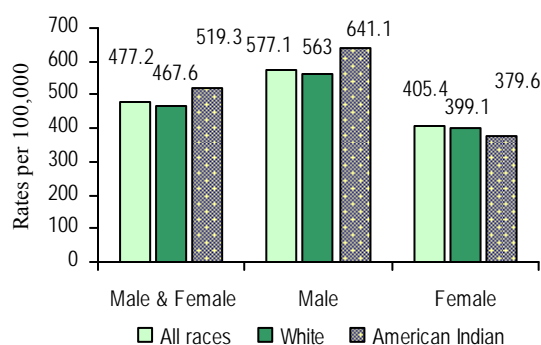
Site	Cases	Percent
Prostate	677	18%
Breast (female)	537	14%
Lung and bronchus	496	13%
Colorectal	456	12%
Bladder	200	5%

Source: South Dakota Department of Health

Incidence 2001-2003

- Aggregated data for the three-year period 2001-2003 shows an age-adjusted incidence rate of 477.2 cases per 100,000 persons compared to the U.S rate² of 483.7 for the same period.
- American Indian males had higher rates than white males while white females had higher rates than American Indian females.

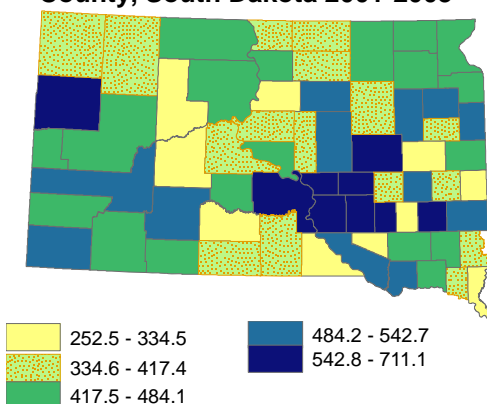
Figure 1: All Cancers Age-Adjusted Incidence Rates by Race, South Dakota 2001-2003



Rates are age-adjusted to the 2000 U.S. standard population.

Source: South Dakota Department of Health

Figure 2: Cancer Incidence Rates* by County, South Dakota 2001-2003

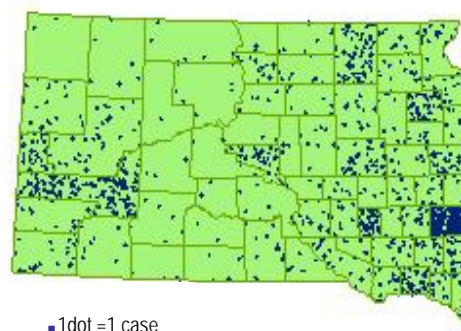


*Rates are cases per 100,000, age-adjusted to 2000 U.S. standard population. S.D. age-adjusted rate is 477.2 cases per 100,000. Range: 252.5-711.1 cases per 100,000 (CI 468.6-486.0).

Source: South Dakota Department of Health

- 21 counties had rates higher than the South Dakota rate.

Figure 3: Cancer Incidence by County, South Dakota 2001-2003



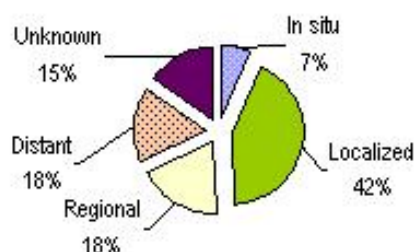
Note: Cases are randomly distributed within a county.

Source: South Dakota Department of Health

Stage at diagnosis³ 2003

- Forty-nine percent of all cancers in South Dakota were diagnosed at the early stages, *in situ*, and localized stages.
- Thirty six percent were diagnosed at regional and distant stages.
- Both whites and American Indians had 17.6 percent of cases diagnosed at distant stages.
- By gender, 42% of male cases were diagnosed at regional and distant stages compared to women with 38%.

Figure 4: Stage at Diagnosis* All Sites, South Dakota 2003



Total n=3,996

Source: South Dakota Department of Health

³SEER SUMMARY STAGE 2000 Early stages are *in situ* and localized while late stages are regional and distant. Prognosis is generally worse for the late stage diagnoses.

Mortality 2003

- Four South Dakotans died from cancer each day.
- Overall cancer was the second leading cause of death in South Dakota.
- Cancer has surpassed heart disease as the leading cause of death for persons under 85 years old.
- A total of 1,636 South Dakotans died from cancer in 2003.
- South Dakota's death rate for 2003 was 188.9 deaths compared to the U.S. SEER rate of 190.1 deaths per 100,000 persons.
- Males accounted for 53% of all cancer deaths with an age-adjusted death rate of 232.6 deaths per 100,000.
- Females accounted for 47% of cancer deaths with an age-adjusted rate of 158.9 deaths per 100,000.
- Whites accounted for 95.7 % of deaths at 1,565 deaths while American Indians accounted for 4.3 % with 71 deaths.
- The top five cancer causes of death accounted for 63 % of deaths.

Table 2: Top Five Cancer Causes of Death, South Dakota 2003

Site	Cases	Percent
Lung and bronchus	405	25%
Colorectal	179	11%
Breast (female)	121	14%
Prostate	107	7%
Pancreas	94	6%

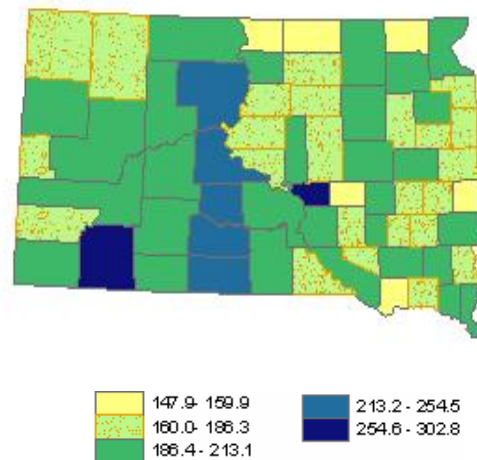
Source: South Dakota Department of Health

Mortality 1999-2003

- The age-adjusted death rate for 1999-2003 was 189.0 deaths compared to a five-year U.S. SEER rate of 193.5 deaths per 100,000 persons.
- At 245.0 deaths per 100,000, the American Indian age-adjusted death was 32 % higher than 187.2 rate among whites for the period 1999-2003.
- American Indians had the death rates for the five year period by gender with a male age-adjusted rate 37% percent higher than the rate for whites.

- By gender, the rates for white males and females were similar over the five-years.

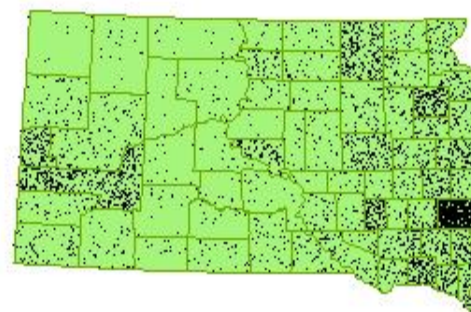
Figure 5: Cancer Death Rates* by County, South Dakota 1998-2003



Note: * Rates are age-adjusted to 2000 U.S. standard population. South Dakota's death rate for 1999-2003 is 189.0 deaths per 100,000. Range: 147.9 –302.8 deaths per 100,000. Source: South Dakota Department of Health

- Moody, Jerauld, Mc Pherson, Marshall, Campbell and Bon Homme Counties have attained the Healthy People 2010 objective of 159.9 deaths per 100,000.
- From 1999 to 2003, the all sites death rate decreased by 4 % (PC) with an Annual Percent Change (APC) of 1.2 %.
- Buffalo and Shannon counties had the highest age-adjusted death rates for the five-year period, 1999-2003.

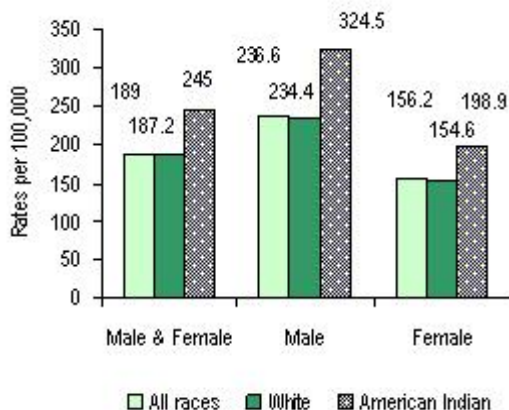
Figure 6: Cancer Deaths by County, South Dakota 1998-2003



. 1 dot=1 death

Deaths are randomly distributed within counties.
Source: South Dakota Department of Health

Figure 7: Cancer Death Rates*
South Dakota, 1999-2003



Notes: Healthy People 2010 Objective is 159.9 cancer deaths per 100,000 persons.

*Rates are per 100,000 persons and age-adjusted to the 2000 U.S. standard population.

Source: South Dakota Department of Health

Table 3: Trends* in Cancer Death Rates for Selected Sites, South Dakota 1999-2003

Cancer Site	APC
Decreasing ↓	
All Cancer Sites	-1.2
Non-Hodgkin Lymphoma	-10.9
Brain & ONS	-5.1
Colon and Rectum	-4.7
Ovary	-3.6
Oral Cavity and Pharynx	-1.7
Prostate	-1.6
Pancreas	-1.2
Stomach	-0.9
Lung and Bronchus	-0.7
Liver and Bile Duct	-0.3
Increasing ↑	
Leukemia	0.2
Breast (Female)	0.7
Kidney and Renal Pelvis	2
Cervix	4.4
Uterus	4.8
Bladder	7.2
Esophagus	7.4
Melanoma of the Skin	13.3
Thyroid	15.4

*Annual Percent change (APC) analyzed using SEER STAT

Source: South Dakota Department of Health

Mortality/Incidence Ratio (M/I)

- The mortality to incidence ratio (M/I) or case fatality overall was 0.4, 0.4 for males and 0.4 females.
- Lung and bronchus cancers were by far the most lethal with an M/I ratio of 1.22.

Years of Potential Life Lost (YPLL₇₅)

- YPLL measures the burden of a disease among younger populations.
- The cancer YPLL₇₅ was 11,342 years, the highest for all causes of deaths in 2003.
- Lung and bronchus cancers had the highest YPLL₇₅ with 2,207 years for whites and 88.5 years for American Indians in 2002.

Age Adjusted Years of Potential Life Lost (AAYPLL₇₅)

- The cancer AAYPLL₇₅ for South Dakota for 2003 was 1,464 years/100,000 persons, the highest of all causes of deaths in South Dakota.
- American Indians had the highest AAYPLL₇₅ rate with 1,684 years per 100,000 compared to whites at 1,472 years per 100,000 persons.

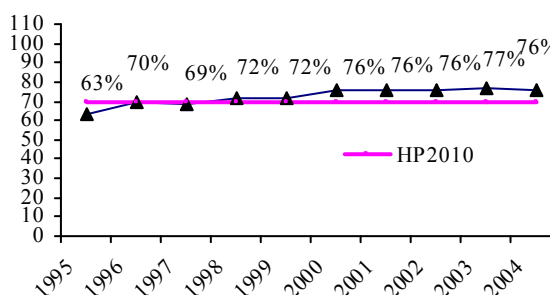
Average Years of Life Lost (AYLL) 2003

- By rank, adult AYLL shows that American Indians are dying at a much younger age losing 17 years compared to 14 years for whites.
- Non-Hodgkin lymphoma cancer had the leading AYLL of 36 years for 2003 for white adults compared to 29 years for esophageal cancer for American Indians.

Early Detection for Screenable Cancers⁴ Breast Cancer

The percentage of women who had mammograms surpassed the Healthy People 2010 Objective of 70% but has remained essentially flat for the past five years.

Figure 8: Trends in Mammography Screening*, South Dakota 1995-2004

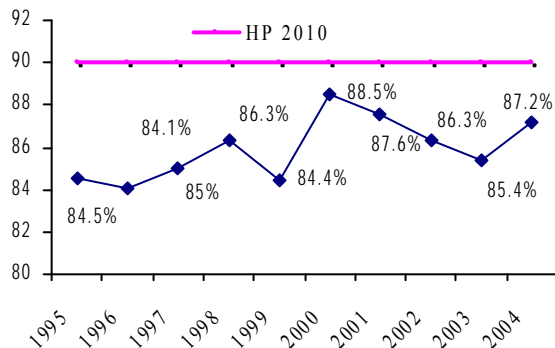


* Women age 40 and older

Cervical Cancer

Eighty-seven percent of women aged 18 and over have ever received a Pap smear within the preceding three years, slightly below the Healthy People 2010 Objective of 90%.

Figure 9: Trends in Pap Screening* South Dakota 1995-2004



*Women with intact uterus aged 18 and over

⁴Source: <http://apps.nccd.cdc.gov/brfss/index.asp> accessed 2 November 20.

Prostate Cancer

In 2004, 53% of men age 40 and over had a PSA within the past 2 years, the same as in 2002. There are no Healthy People 2010 objectives for prostate cancer screening.

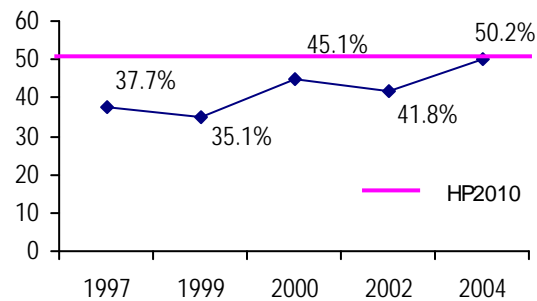
Colorectal Cancer

Healthy People 2010 Objective 3-12:

a. Increase the proportion of adults who receive a fecal occult blood test (FOBT) within the preceding 2 years to 50 %. The percentage of adults aged 50 plus who have had a blood stool test within the past two years was 24% in 2004.

b. Increase the proportion of adults who receive sigmoidoscopy or colonoscopy within the preceding 2 years to 50%. South Dakota has met Healthy People 2010 Objective of 50%.

Figure 10: Trends in Colorectal Cancer Screening,* South Dakota 1997-2004



*Percentage who ever had a sigmoidoscopy or colonoscopy.

Approximately 62-65 % of those who were screened from 1999 -2004 were screened within the preceding two years of the survey.

Behavioral Risk Factors⁵

Tobacco use and lack of low fat diet high in grains combined with lack of exercise are risk factors for approximately 30% each of all cancers. The BRFSS tracks alcohol, tobacco, consumption of fruits and vegetables and physical activity. It also tracks socio-economic factors such as poverty and education, known risk factors for cancer. The following are data from the BRFSS survey among South Dakotans.

Tobacco Use

a). **Current Smokers:** 19.8% of adult South Dakotans reported in 2005 that they currently smoke. The Healthy People 2010 Objective is 12% and the Department of Health 2010 Initiative objective is 18%.

b). 24% of 18-24 year olds currently smoke and 11.5% currently use spit tobacco according to the 2005 Youth Risk Behavior Survey (YRBS).

Alcohol Use

a. In 2005, 18% reported binge drinking. Binge drinking is 5 or more drinks on one occasion. The Healthy People 2010 Objective is 6 percent.

b. In 2005, 4.3% of adults reported heavy drinking. This data measures men having

more than two drinks and women having more than 1 drink per day.

Physical Activity

In 2005, 77.5% reported taking part in physical activity.

Fruits and Vegetables

In 2005, 20.5% of respondents ate ≥ 5 fruits and vegetables per day.

Overweight/Obesity

In 2005, 37.3% were overweight (BMI 25-29.9) and 25.5% were obese, (BMI ≥ 30).

Health Coverage

In 2004, 89.5% of respondents reported having health coverage

Socio-economic Factors

Income and high school graduation levels are the socio-economic factors usually correlated to health status. For example in 2004:

a). High School Graduation.

Sixty-five percent of women who did not graduate from high school had mammograms while 80.2% of those with a college education had mammograms.

- Sixty- three percent of those earning less than \$15,000 annually had mammograms compared to 80.4% of those who graduated from college.
- Nine percent of South Dakota households earned less than \$15,000 annually.
- 28.5% of those without a high school diploma earned less than \$15,000.
- 36.1% earned between \$15,000 and \$29,999 annually.

⁵ Behavioral Risk Factor Surveillance System (BRFSS) South Dakota Department of Health

b). Income

Table 4: ALL CANCER SITES COMBINED , FAST FACTS, SOUTH DAKOTA 2003

	<i>All sexes</i>		<i>Male</i>		<i>Female</i>	
<i>CANCER INCIDENCE</i>						
<i>All cancer cases combined*</i>	3,814		2,045		1,769	
White	3,640	95%	1,952	95%	1,688	95%
American Indians/Alaskan Native	148	4%	73	4%	75	4%
Other	26	1%	20	1%	6	<1%
<i>Age-adjusted incidence rates</i>						
South Dakota all races	458.2		547.7		391.6	
SD White	458.2		545.1		393.6	
SD American Indian/Alaskan Native	485.8		577.9		423.6	
U.S. SEER all races	452.8		533.0		397.8	
U.S. White	456.0		527.9		407.5	
U.S. American Indian/Alaskan Native	not		available			
<i>CANCER MORTALITY</i>						
<i>All cancer deaths combined*</i>	1,636		861		775	
SD White	1,565		824		741	
SD American Indian/Alaska Native	71		37		34	
<i>Age-adjusted death rates</i>						
South Dakota age-adjusted rate	188.9		232.6		158.9	
SD White	187.9		230.8		158.4	
SD American Indian/Alaskan Native	258.7		359.7		205.6	
U.S. all races	190.1		234.1		160.5	
U.S. White	188.3		230.6		159.7	
U.S. American Indian/Alaskan Native	121.0		142.3		106.8	
<i>Trends (Annual Percent Change)</i>						
South Dakota all races	-1.2		-2.0		0.1	
SD White	-1.2		-2.2		0.0	
SD American Indian/Alaskan Native	2.1		2.8		0.9	
U.S. all races	-1.3**		-1.7**		-1.0**	
US White	-1.1**		-1.6**		-0.9**	
U.S. American Indian/Alaskan Native	-2.7		-3.1		-2.5	
<i>Percent Change 1999-2003</i>						
South Dakota all races	-4.0		-7.4		0.6	
SD White	-4.3		-8.0		1.1	
U.S. American Indian/Alaskan Native	15.5		10.4		16.3	
US all races	-5.1		-7.0		-4.0	
US White	-4.6		-6.6		-3.6	
U.S. American Indian/Alaskan Native	-12.3		-13.8		-11.6	

Incidence and death rates are adjusted to the U.S. 200 standard population((19 age-groups-Census P25-1130)

* Includes all invasives and only *in situ* bladders.

Source: South Dakota Department of Health ; U.S. rates are SEER 13 Registry Data, SEER Stat 6.2.4

** The estimated Annual Percent Change is significantly different from 0 (p<.05)

Table 4 (cont'd) : ALL CANCER SITES COMBINED , FAST FACTS, SOUTH DAKOTA 2003
PROGNOSIS AND BURDEN South Dakota

	All sexes			Male		Female	
Prognosis: Mortality/Incidence (M/I) ratio							
All races	0.4		0.4		0.4		
White	0.4		0.4		0.4		
American Indian/Alaskan Native	0.5		0.5		0.5		
Stage at diagnosis invasive and in situ							
All races	3,996		2,087		1,909		
In situ	267	6.7%	110	5.3%	157	8.2%	
Localized	1,700	42.5%	934	44.8%	766	40.1%	
Regional	728	18.2%	333	16.0%	395	20.7%	
Distant	704	17.6%	380	18.2%	324	17.0%	
Unstaged	597	14.9%	330	15.8%	267	14.0%	
White	3,824		2,001		1,841		
In situ	259	6.8%	107	5.3%	152	8.3%	
Localized	1,643	43.0%	904	45.2%	739	40.1%	
Regional	701	18.3%	329	16.4%	372	20.2%	
Distant	672	17.6%	361	18.0%	311	16.9%	
Unstaged	549	14.4%	300	15.0%	267	14.5%	
American Indian/Alaskan Native	154		76		78		
In situ	6	3.9%	3	3.9%	3	3.8%	
Localized	46	29.9%	21	27.6%	25	32.1%	
Regional	35	22.7%	13	17.1%	22	28.2%	
Distant	31	20.1%	18	23.7%	13	16.7%	
Unstaged	36	23.4%	21	27.6%	15	19.2%	
Burden (YPLL 75)							
White	10,596 years						
American Indian/Alaskan Native	731 years						
Burden (AAYPLL 75)							
White	1,472 years per 100,000 persons						
American Indian/Alaskan Native	1,684 years per 100,000 persons						
Burden (AYLL 75)							
White	14 years						
American Indian/Alaskan Native	17 years						

YPLL-Years of Potential Life Lost

AAYPLL-Age-adjusted rate years of potential life lost per 100,000 persons

AYLL-Average years of life lost per 100,000 persons

South Dakota Comprehensive Cancer Control Hospice Survey Report

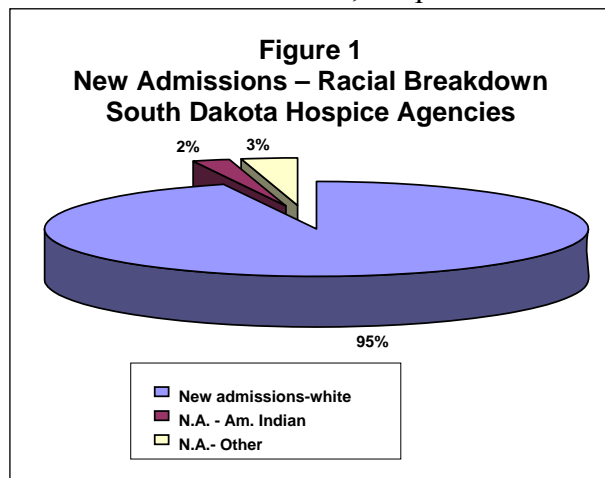
by Jacy Clarke, Chronic Disease Epidemiologist

Office of Health Promotion, South Dakota Department of Health

In early 2006, the South Dakota Department of Health in collaboration with the Comprehensive Cancer Control Consortium disseminated a survey to statewide hospice agencies. The purpose of this survey was to assess various quality improvement indicators. Twenty-eight paper surveys were mailed out to all registered hospice agencies throughout the state of South Dakota. Eighteen surveys were completed and returned. The overall response rate for this survey was 67%, which is above average and therefore confirming data reliability.

The number of hospice programs nationwide has grown from one program in 1974, to 2,312 in 1994, and 3,650 in 2004. Non-profit hospice programs continue to dominate at 63%. However, for profit programs are increasing, 29% in 2003 and 31% in 2004 as well as government run programs, up from 4% in 2003 to 6% in 2004 (NHPCO, 2004). Nationwide, there was an increase in patients under hospice care. In 2003 there were 950,000 patients and in 2004 there were 1,060,000 hospice patients. This is an overall increase of 110,000 patients (NHPCO, 2004). The majority (12) of South Dakota hospice agencies use the calendar year as their financial year. Five agencies use the fiscal year, beginning July 1st, while one agency failed to answer the question.

South Dakota is one of the least densely populated states in the nation with 754,844 people. Of the State's population, 88.7 percent are white of which 99.3% are white alone, not Hispanic or Latino), 9.0 percent are Native American and the remaining 2.3 percent are classified as some other race. Ninety-five percent of new hospice admissions in South Dakota were Caucasian. Two percent of new admissions were Native American while three percent indicated "Other" race classification. As reported by NHPCO (2004), nationwide, 77.3% of patients were Caucasian; 8.1% were African American; 6.4% were multiracial; 6.2% were Hispanic/Latino; 1.7% were Asian/Pacific Islander. The largest increases were in Hispanic or Latino patients (4.3% in 2003 vs. 6.2% in 2004) as well as multiracial patients (4.6% in 2003 vs. 6.4% in 2004).

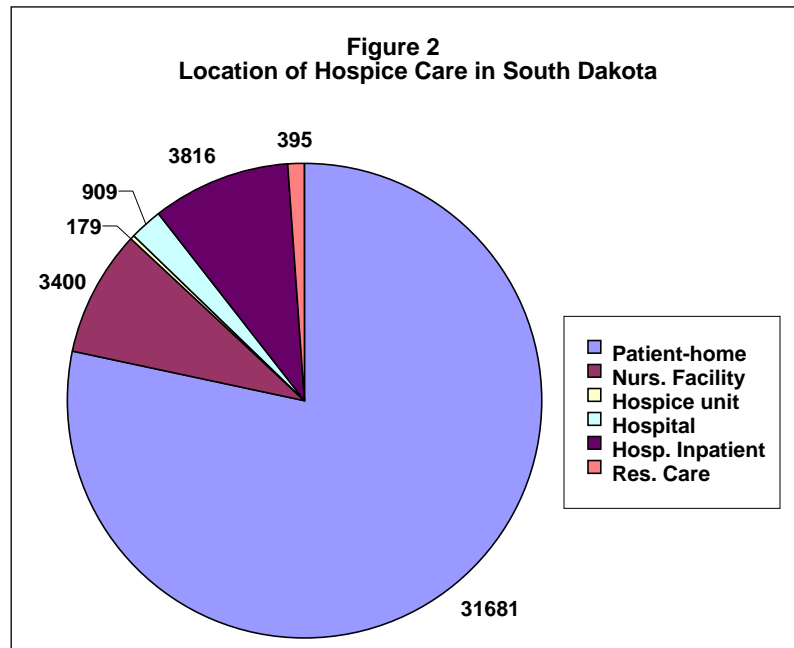


The average age of South Dakota hospice patients was 76.5, with respondents reporting the average patient age ranging from 70-82. The national average is 75 years of age or older.

The average length of stay for patients in South Dakota was 45.5 days, with agencies reporting average length of stay ranging from 27-135 days. The national average length of stay range was between 36 and 63 days. Nationwide, the average length of stay in 2004 was 57 days with a median of 22 days (NHPCO, 2004).

Only 20% of hospices nationwide have a length of stay greater than 64 days (NHPCO, 2005). Patients staying in the hospice program 14 days or less in South Dakota averaged 36.7%, the range was from 20%-64%. Nationwide, only 4% of hospices have an average length of stay of less than 21 days (NHPCO, 2005).

The average daily census in South Dakota was 10.7 patients, with directors indicating anywhere from 0.41-38. Sixty-five percent of hospices nationwide have an average daily census of 26 to 200 patients (NHPCO, 2005).



For 79% or 31,681, of patient days South Dakota hospice patients resided at their home. Ten percent, or 3,816 patient days were in hospital inpatient care; 8% or 3,400 patient days were in nursing home facilities; 769 patient days are in the hospital; 395 patient days were in a residential care facility; and 179 patient days were in a hospice unit.

Respondents reported that 53% of patients currently being cared for by South Dakota hospices have non-cancer related illnesses. The national average in

2004 was 54%. Cancer diagnoses accounted for 47% of hospice admissions, while nationwide cancer diagnoses accounted for 46% (NHPCO, 2004).

South Dakota hospice data obtained in this survey is reflective and parallel to most of the national statistics presented. To best enable positive change, South Dakota hospices are committed to continuously evaluating and monitoring quality indicators within the organization. Improving the quality of services that are offered allows for the best possible outcomes for patients and families.

South Dakota Hospice Agencies Participating in the Survey

Avera McKennan Hospice	Hospice of the Northern Hills
Avera McKennan Hospice-Madison	Huron Regional Medical Center Community Hospice
Avera Sacred Heart Hospital	Mitchell Community Hospice
Avera St. Benedict Hospice	Rapid City Regional Hospice of the Hills
Avera St. Lukes-North Plains	Scotland Area Hospice
Brookings Hospital Hospice	Sioux Falls Hospice
Chamberlain Hospice	St. Mary's Healthcare
Compassionate Care	Sioux Valley Winner Hospice
Freeman Hospice Sioux Valley	Vermillion Hospice

References

- National Hospice and Palliative Care Organization. *National Hospice and Palliative Care Organization's 2004 Facts and Figures*. Retrieved March 1, 2006 from http://www.nhpc.org/files/public/Facts_Figures_for2004data.pdf
- National Hospice and Palliative Care Organization. *2005 Hospice and Palliative Care Leadership Survey*. Retrieved March 1, 2006 from http://www.nhpc.org/files/public/Furst-Group_Hospice_Exec_Survey_2005.pdf

South Dakota Department of Health - Infectious Disease Surveillance				
Selected Morbidity Report, 1 January – 30 November 2006 (provisional)				
	Disease	2006 year-to-date	5-year median	Percent change
Vaccine-Preventable Diseases	Diphtheria	0	0	na
	Tetanus	0	0	na
	Pertussis	20	7	+186%
	Poliomyelitis	0	0	na
	Measles	0	0	na
	Mumps	292	0	na
	Rubella	0	0	na
	<i>Haemophilus influenza</i> type b	0	0	na
Sexually Transmitted Infections and Blood-borne Diseases	HIV infection	27	21	+29%
	Hepatitis B, acute	3	2	+50%
	Chlamydia	2407	2310	+4%
	Gonorrhea	344	259	+33%
	Herpes, genital or neonatal	341	298	+14%
	Syphilis, primary & secondary	12	0	na
Tuberculosis	Tuberculosis	12	13	-8%
Invasive Bacterial Diseases	<i>Neisseria meningitidis</i>	5	3	+67%
	Invasive Group A <i>Streptococcus</i>	10	20	-50%
Enteric Diseases	<i>E. coli</i> , shiga-toxin producing	49	35	+40%
	Campylobacteriosis	217	190	+14%
	Salmonellosis	127	122	+4%
	Shigellosis	332	93	+257%
	Giardiasis	82	82	0
	Cryptosporidiosis	80	38	+111%
	Hepatitis A	9	2	+350%
Vector-borne Diseases	Animal Rabies	35	83	-58%
	Tularemia	5	5	0
	Rocky Mountain Spotted Fever	0	4	-100%
	Malaria (imported)	1	0	na
	Hantavirus Pulmonary Syndrome	2	1	+100%
	Lyme disease	1	1	0
	West Nile Virus disease	113	140	-19%
Other Diseases	<i>Streptococcus pneumoniae</i> , drug-resistant	2	3	-33%
	Legionellosis	5	4	+25%
	Additionally, the following diseases were reported: Chickenpox (78); Fusarium keratitis (1); Group B <i>Strep</i> , Invasive. (12); Hemolytic uremic syndrome (8); Hepatitis B, chronic (14); Hepatitis C, chronic (178); Listeria (2); MRSA, invasive (19); Q fever (2); Typhoid fever (1 - imported).			

Communicable diseases are obligatorily reportable by physicians, hospitals, laboratories, and institutions.

The **Reportable Diseases List** is found at www.state.sd.us/doh/Disease/report.htm or upon request.

Diseases are reportable by telephone, mail, fax, website or courier.

Telephones: 24 hour answering device 1-800-592-1804; for a live person at any time call 1-800-592-1861; after hours emergency 605-280-4810. **Fax** 605-773-5509.

Mail in a sealed envelope addressed to the DOH, Office of Disease Prevention, 615 E. 4th Street, Pierre, SD 57501, marked "Confidential Medical Report". **Secure website:** www.state.sd.us/doh/diseasereport.htm.

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